



16329

BRITISH HONDURAS ANNUAL MEDICAL REPORT FOR THE YEAR ENDING  
31st DECEMBER, 1953.

1.—MAIN EVENTS.

STAFF:

The authorised Medical Staff consists of a Director of Medical Services, a Medical Officer of Health, a Surgeon Specialist and eight Medical Officers.

Dr. E. Losonczy, D.P.H., arrived on 18th May, 1953, and assumed duty as Medical Officer of Health for the Colony.

Dr. S. J. Lach retired from the Service on the grounds of ill health with effect from 30th June, 1953.

Dr. G. G. Smith proceeded on vacation and study leave in November 1953.

Dr. J. M. Hastings was appointed Acting Director of Medical Services in the absence of Dr. Smith.

Mrs. O. Springer was appointed Radiographer, Belize Hospital, on 1st January.

VISITS.

Dr. Stanford F. Farnsworth, Representative Zone III of the Pan American Sanitary Bureau, visited the Colony in March to discuss plans for the B.C.G. Vaccination Programme.

Mr. E. H. Magoon, Sanitary Engineer, Rockefeller Foundation, visited the Colony in May to investigate a scheme for the water supply of the Northern District.

Dr. Pinto Severo of the World Health Organization visited the Colony in August to advise on spraying technique.

Mr. T. Z. Henrisken of the World Health Organization visited the Colony in October and gave advice on the compiling of statistics for the B.C.G. Campaign.

TRAINING.

Dr. J. M. Hastings passed the F.R.C.S. (Edin.) in June 1953.

Dr. B. M. Hulse was awarded a World Health Organization Fellowship to study Tuberculosis Control Methods in the U.S.A.

Mr. H. Bennett, the Laboratory Technician, was awarded a World Health Organization Fellowship to study laboratory methods of diagnosis and culture of tuberculous material in the U.S.A.

Nurse C. Pinks, Public Health Nurse, was sent to Jamaica on a course to learn B.C.G. vaccination technique.

Ten candidates for general nursing training and two for rural health nursing were accepted during the year.

Three student nurses qualified, and two rural health nurses completed their training.

LEGISLATION.

Ordinance

No.

20/53 To establish a Mental Hospital in Belize.

30/53 Registration of Nurses Ordinance.

Statutory  
Instrument

No.

6/53 Change of Title of District Midwives to that of Rural Health Nurses.

45/53 Dangerous Drugs.

51/53 Hospital Fees (Amendment).

RBB/50f

## FINANCE.

The estimated expenditure of the Department was \$393,643 representing 10.68% of the Colony's budget.

### A. REVENUE—

Laboratory Fees .. .. .	\$1,044.00
Hospital (Maintenance of Patients and Operation Fees) .. .. .	19,647.00
Total .. ..	<u>\$20,691.00</u>

### B. EXPENDITURE—

(1) Personal Emoluments .. .. .	\$165,105.05
(2) Dieting —(a) Nurses .. .. .	20,393.85
(b) Patients .. .. .	59,642.31

incurred in respect of the following institutions:—

Institutions	Total Expenditure in Dollars	Average Daily No. of Patients	Cost per head per diem in ¢
Belize Hospital .. .. .	22,353.63	110.16	.56
Mental Hospital, Poor House and T.B. Sanitorium.. .. .	27,681.25	163.33	.46
Corozal Hospital.. .. .	2,339.83	19.92	.32
Orange Walk Hospital .. .. .	1,077.43	8	.37
Stann Creek Hospital .. .. .	2,217.50	14	.43
Toledo Hospital .. .. .	2,073.72	16	.36
Cayo Hospital .. .. .	1,898.95	10.38	.50

### (3) Feeding of School Children

Belize .. .. .	\$20,526.47
District Towns and Villages .. .. .	3,301.80
Total .. ..	<u>\$23,828.27</u>

### (4) Health Services

Belize .. .. .	\$8,323.38
Districts .. .. .	4,787.19

### (5) Other Charges .. .. . \$109,089.86

## II.—DEVELOPMENT AND WELFARE SCHEMES.

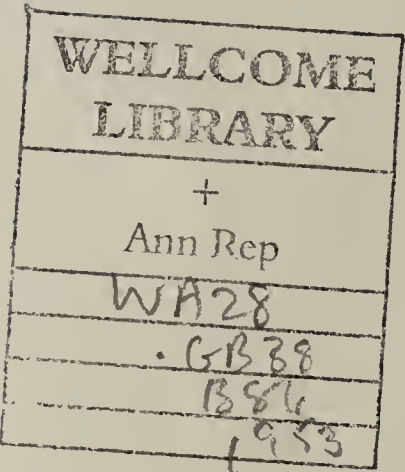
*Scheme D1020—Rural Dispensaries:* The Rural Health Centre at San Antonio, Toledo district, was opened in June 1953. The nine rural health centres planned in 1948 have now been completed, and opened, with the exception of that at Sarteneja, which is complete but lacks a nurse. She completed her training in December 1953. Funds for this scheme were provided by Colonial Development and Welfare.

## III.—HOUSING.

In Belize the majority of the people live in houses built of timber with galvanized iron roofs, and standing on wooden piles about 7 feet above the ground. The work of filling and reclaiming the low-lying land in Belize, some of which is below sea level, is constantly being undertaken by private people and the City Council. Reclaiming of land is also undertaken by the government from time to time.

During 1953 a start was made on slum clearance in Belize. Ten terraced houses were built in Queen Charlotte's Town and some work done on 68 houses planned for Cinderella Town.

Housing conditions elsewhere vary with the population. In the North the Indians live in adobe houses made of poles, mud and plaster. They are as a rule painted white, and the roof is of thatch.



In the south the Caribs live in the same type of houses, but without plaster on the walls.

The standard type of house in the towns is the frame house standing on piles with a single layer of pine boards for the walls and a galvanized iron roof. Sash windows are usually provided. These houses are hot and uncomfortable during the dry season, owing to the lack of ventilation between ceiling and roof.

Gradually more and more concrete is being used as a building material in the colony

IV—PUBLIC HEALTH.

The general health of the colony remained good throughout the year. The death rate per 1,000 of the population showed a fall from 10.85 in 1952 to 10.77 in 1953. There was, however, an increase in the infant mortality rate from 78.3 per 1,000 live births to 87.07.

The infant Welfare Clinic babies in Belize showed 16 deaths as against 21 in 1952. The increased infant mortality rate means 23 more deaths (260 as against 237) than in 1952 and 42 fewer births (2,986 in 1953 as against 3,028 in 1952).

The figures and rates in respect of 1952 and 1953 are shown below:

	1952	1953
Estimated population at 31st December .. .. .	73,171	75,782
Number of registered births .. .. .	3,028	2,986
Number of deaths from all causes .. .. .	794	816
Number of deaths in infants under 1 year .. .. .	237	260
Number of deaths in infants under 1 month .. .. .	105	113
Number of still births .. .. .	98	105
Rates—		
Birth rate per 1,000 of population .. .. .	41.38	39.4
Crude death rate per 1,000 of population .. .. .	10.85	10.77
Infant mortality rate per 1,000 live births .. .. .	78.3	87.07
Neonatal death rate per 1,000 live births .. .. .	34.67	37.84
Still birth rate per 100 live births .. .. .	3.24	3.52

55.51 % of deaths were certified by a medical practitioner, as compared with 61.21 % in 1952.

COMMUNICABLE DISEASES.

*Malaria:* There has been a further decline in the incidence of malaria in 1953. This is probably due to the continuation of the insect control programme.

In October a malaria survey was carried out in Belize and district towns. This involved (i) the identification of mosquitoes, (ii) the taking of blood slides from children under two years of age in the infant welfare clinics, and (iii) spleen rates.

Three facts emerged from this survey.

(1) That the incidence of malaria as judged by the hospital admission rate, death rate, parasite rate and spleen rate has dropped by something like 80% over the past four years.

(2) That insect control should be concentrated round Belize and in the Stann Creek Valley development area.

(3) That two of the malaria vectors *i.e.* Anopheles Darlingi and Anopheles Vestitipennis have been eliminated.

Malaria cases admitted to the various hospitals were as follows:

Hospital	Cases	Total Admission	Admission Percentage
Belize .. .. .	46	3,089	1.49
Corozal .. .. .	30	357	8.4
El Cayo .. .. .	36	402	8.96
Stann Creek .. .. .	78	894	8.72
Toledo .. .. .	131	739	17.73
Orange Walk .. .. .	20	220	9.09
	341	5,701	5.98

*Typhoid and Paratyphoid:* Seventy-four cases with 4 deaths were notified as against 294 cases with 1 death in 1952.

*Dysentery:* One hundred and fifty-five cases with 9 deaths were notified as against 294 cases with 18 deaths in 1952.

*Pulmonary Tuberculosis:* Sixty-one cases with 20 deaths were notified as against 85 cases with 35 deaths in 1952. Owing to the introduction of Rimifon and Streptomycin treatment there has been a considerable fall in the death rate from this disease, which has resulted in the accumulation of cases in the already over-crowded accommodation available. About 35 cases in the Colony are having domiciliary treatment. This was made possible by the co-operation of the Red Cross and Black Cross Nursing Societies.

Comparative death rate for the period 1941-1953 are as shown below:

Years	Total Deaths							Death rate per 100,000 of population			
1941	..	..	..	..	..	..	38	..	..	..	62
1942	..	..	..	..	..	..	31	..	..	..	50
1943	..	..	..	..	..	..	44	..	..	..	70
1944	..	..	..	..	..	..	29	..	..	..	46
1945	..	..	..	..	..	..	37	..	..	..	58
1946	..	..	..	..	..	..	42	..	..	..	70
1947	..	..	..	..	..	..	32	..	..	..	52
1948	..	..	..	..	..	..	45	..	..	..	71
1949	..	..	..	..	..	..	33	..	..	..	50
1950	..	..	..	..	..	..	34	..	..	..	50
1951	..	..	..	..	..	..	37	..	..	..	53
1952	..	..	..	..	..	..	35	..	..	..	48
1953	..	..	..	..	..	..	20	..	..	..	26

The B.C.G. Vaccination Campaign planned for the Colony for this year commenced in September. The campaign was made possible by (i) the arrival of Dr. E. Losonczi as Medical Officer of Health (ii) the training of a Public Health Nurse in B.C.G. vaccination technique. The campaign commenced in Belize on 11th September and was completed on 26th October. The team then began its districts tours, and this should be completed by April or May 1954. The response in Belize was very good. Although only those under 30 were supposed to be tuberculin tested, in actual fact some 22,000 of the 24,000 inhabitants of Belize appeared for test. As materials were available all were given the test, but none over 30 received B.C.G. The campaign was aided by the co-operation of the Public Relations Officer and widely advertised by press and radio. So far 27,457 tests have been made and 13,242 have received B.C.G. vaccination.

The anti-tuberculosis campaign was further promoted by the sending on World Health Organization Fellowships (i) a doctor to the U.S.A. to study tuberculosis control methods and (ii) a laboratory technician to study laboratory methods of diagnosis and culture of tuberculosis material. A chest clinic has also been opened at the Belize Hospital, which it is hoped will lead to earlier diagnosis. The home nursing service is under the supervision of the doctor in charge of this clinic and a public health nurse.

The mass radiography unit has not yet been obtained for the colony, and it seems unlikely that one will be obtained before the latter part of 1954.

*Yellow Fever:* The spread of this disease northward has continued in 1953. It has now reached the border between Nicaragua and Honduras in a very remote part of the country.

There have been no cases in this colony and until the disease reaches the north coast of Honduras, there is no danger of spread by the overseas route.

The presence of yellow fever in Honduras, however, was a constant threat, and as the B.C.G. vaccination team was touring the districts anyway, they were instructed to inoculate the district population with yellow fever vaccine as well. This inoculation was given at the time of inspection of the tuberculin test. The same inoculation campaign will be undertaken in Belize at a later date. Up to the end of the year about 8,000 of the rural population had been inoculated.

Meantime a strenuous campaign was undertaken to ensure that vats and water containers in Belize were not left uncovered or unscreened, and vats were also treated with DDT and kerosene. In this way it was hoped to eliminate the vector of Yellow Fever (*Aedes Aegypti*).

*Veneral Diseases:* There were 1,827 attendances at the V.D. Clinic of which 1,497 were for syphilis and 330 for gonorrhea. 199 new cases of syphilis and 319 new cases of gonorrhea were notified.

The drop in the total number of attendances from 1952 (4,322) is attributed to the change over to penicillin, which requires many fewer injections.

## V.—INSTITUTIONS.

### (a) PLANNED DEVELOPMENT PLANS 1952-56.

A new house for the Surgeon Specialist was completed during the year and the surgeon moved in on December 15th. His old quarters were rapidly converted into a temporary Maternity Ward and the maternity patients moved in December 27th. The P.W.D. commenced to knock down the old maternity ward the next day, to make way for the new surgical and maternity wing of the Belize Hospital.

Funds for the surgeon's house were supplied by the Government, those for the hospital were supplied by C.D. and W.

*Stann Creek Hospital:* This hospital, as planned, will cost more than the \$70,000 allocated by C.D. and W. funds. A new plan will have to be submitted in 1954. It seems probable that one of the ward blocks will have to be sacrificed, but by alterations in the old part of the hospital it is hoped to retain the 38 beds as originally planned.

*Health Centre, Belize:* A suitable site for this building has been found on the South side of the town. It is possible that the building may be constructed in 1954 and not in 1955 as originally planned.

*Tuberculosis Sanatorium:* An extension to the existing sanatorium which will supply an extra ten beds is planned for 1954. Money will come from the Official Charities Fund.

### (b) INSTITUTIONS COMPLETED.

The Rural Health Centre at San Antonio, Toledo District, was opened in June 1953.

*The Colonial Drug Store* was completed by 24th November and was fully functioning by the end of the year. It is a concrete, one storey building situated in the hospital compound.

*Extension to the Laboratory:* This was built on to the existing building to provide a separate room for tuberculosis culture work.

Funds for this were provided by the Government.

## VI.—PREVENTIVE MEASURES.

### HYGIENE AND GENERAL SANITATION.

There is still no sewage system in Belize, and night soil is dumped in the three open canals which run through the town. As suggested by Mr. Magoon, Sanitary Engineer of the Rockefeller Foundation, the mouths of these canals were dredged by the Public Works Department. There was, however, no effect on the flow of water, as the mouths quickly silted up again.

It is possible that during 1954 sufficient water will be brought into Belize from the Pine Ridge to give the town a proper running water supply. This will not only make a water carriage sewage system possible, but by doing away with the necessity of vats and water containers, will help in the mosquito control programme.

In the meantime, an attempt is being made to improve the sanitary conditions of the schools in Belize.

*Mosquito Control:* This programme has been continued as reported under "Malaria" and "Yellow Fever".

*Enteric Control:* There are no developments to report.

## VII.—HOSPITAL.

The total bed strength of the six hospitals in the Colony is 244 or 3.3 beds per 1,000 of the population.

There were 5,701 admissions to the six hospitals made up as follows:—

Belize Hospital .. .. .	3,089
Stann Creek Hospital .. .. .	894
Punta Gorda Hospital .. .. .	739
Cayo Hospital .. .. .	402
Corozal Hospital .. .. .	357
Orange Walk Hospital .. .. .	220

#### MATERNITY WARD, BELIZE HOSPITAL.

There were 536 deliveries with seven maternal deaths, as compared with 534 deliveries with no deaths in 1952.

List of Surgical Operations performed in Belize Hospital:—

Appendicectomy .. .. .	82
Intestinal Obstruction .. .. .	3
Other abdominal Operations .. .. .	35
Herniorrhaphy .. .. .	60
Hysterectomy (Total and Sub-Total) .. .. .	45
Caesarian Section .. .. .	10
Ectopic Gestation .. .. .	8
Genito-Urinary Operation .. .. .	15
Cataracts .. .. .	2
Other eye, ear, nose, and throat operations .. .. .	10
Amputations .. .. .	19
Fractures .. .. .	188
Minor Operations .. .. .	315
Tonsils .. .. .	27
Miscellaneous .. .. .	165
Total .. .. .	984

Surgical Clinics are held twice weekly and there are two operating days per week.

#### OUT-PATIENT DEPARTMENT.

There was a total of 50,249 attendances at the six out-patient departments as follows:—

Belize .. .. .	36,492
Corozal .. .. .	2,099
Orange Walk .. .. .	3,243
Cayo .. .. .	1,847
Stann Creek .. .. .	5,166
Toledo .. .. .	1,402

Tables showing morbidity returns in respect of the out-patient's departments and hospitals are shown in Appendices 7 and 8 respectively.

#### DENTAL CLINICS.

Three Clinics held weekly at the Belize Hospital with a total attendance of 2,038 as against 2,480 in 1952. Visits were paid by a Dental Surgeon to rural districts.

#### MATERNAL HYGIENE.

Clinics were held at seventeen centres throughout the Colony, with a total attendance of 5,829. In Belize the number of cases registered was 589. There were 536 deliveries with 7 maternal deaths. 534 deliveries with no deaths in 1952.

#### CHILD HYGIENE.

Clinics were held in eighteen centres throughout the Colony with a total attendance of 55,019. In Belize, clinics were held weekly at two centres, one on the North Side and the other on the South Side of the City. The following statistics show the volume of work done in Belize.

## CHILD HYGIENE.

	Meso- potamia	Victoria Street	Total
No. of Clinics held .. .. .	48	69	117
No. of New babies registered .. .. .	470	370	840
No. of attendances .. .. .	5,698	4,676	10,374
No. of Medical Examinations .. .. .	970	1,068	2,038
No. of Health visits to Homes .. .. .	751	509	1,260
No. of Deaths (0-5 years old) .. .. .	10	13	23
No. of Deaths under 1 yr. of age .. .. .	8	8	16
No. of Pounds Powdered Milk distributed (UNICEF) .. .. . U.N.I.C.E.F.		2,331½	2,331½
No. of Pints Cod Liver Oil distributed .. .. .	76½	71½	148
No. of Pounds good Yeast .. .. .	41½	27½	68½

*Feeding of School Children:* The responsibility for providing the mid-morning snack, i.e. milk and a biscuit with margarine, now devolves on Government. This programme (School Feeding Demonstration) was inaugurated in 1950 with supplies from U.N.I.C.E.F.

The responsibility for providing mid-day meals for needy school children now devolves entirely on Government, but the Red Cross Society still cook the meals at their Headquarters and despatch them to the schools concerned.

Pre-school age children (up to 1 year) are supplied with whole milk powder through infant welfare clinics.

## MENTAL HOSPITAL.

	Male	Female	Total
No. of inmates present at the beginning of the year .. .. .	44	40	84
No. of inmates admitted during the year .. .. .	23	18	41
No. of inmates discharged during the year .. .. .	17	12	29
No. of inmates died during the year .. .. .	6	5	11
No. of inmates remaining at the end of the year .. .. .	44	41	85

Of the number admitted during the year 32 were for observation and of this number 14 were certified as insane.

## POOR HOUSE.

	Males	Female	Total
No. of inmates present at beginning of the year .. .. .	26	15	41
No. of inmates admitted during the year .. .. .	33	9	42
No. of inmates discharged during the year .. .. .	12	3	15
No. of inmates died during the year .. .. .	21	3	24
No. of inmates at the end of the year .. .. .	26	18	44

## LABORATORY.

A total of 13,327 examinations were made, classified as follows:—

1. *Haematology*—

No. of Full Blood Counts .. .. .	466
No. of Single Haemoglobin Tests .. .. .	628
No. of White Cell Counts with differential .. .. .	313
No. of E. S. R. (Cutler) .. .. .	258
No. of Bleeding Time .. .. .	—
No. of Coagulation Time .. .. .	6
No. of Sickling .. .. .	2
No. of Blood Grouping .. .. .	33
Total Haematology .. .. .	1,706

2. *Biochemistry*—

No. of Blood Sugar .. .. .	19
No. of Blood Urea .. .. .	16
No. of Spinal Fluids .. .. .	—
No. of Renal Function Tests .. .. .	1
No. of Vander Bergh .. .. .	—
No. of Fractional Test Meals .. .. .	23
Total Biochemistry .. .. .	59

3. <i>Serology</i> —						
No. of Kahn Tests	..	..	..	..	3,925	
No. of Kahn Tests Positive	..	..	..	..	557	
Percentage of Positives	..	..	..	..		14.06%
No. of Widal Tests	..	..	..	..	245	
No. of Widal Tests Positive	..	..	..	..	103	42.04%
				Total of Serology	..	4,208
4. <i>Blood Parasites</i> —						
No. of Blood Smears for Malaria	..	..	..			337
No. of Positives	..	..	..	25		
Percentage of Positives	..	..	..		7.42%	
No. containing P. Falciparum	..	..	..	17		
Percentage of P. Falciparum	..	..	..		68%	
No. containing P. Vivax	..	..	..	8		
No. containing P. Malaria	..	..	..	—		
5. No of Smears for G. C.				..		294
No. of positives	..	..	..	84		
Percentage of Positives	..	..	..		28.57%	
Doubtful G.C.	..	..	..	122		
6. Throat Swabs for K.L.B.				..		62
Throat Positive K.L.B.	..	..	..	5		
7. No. of Stools				..		277
No. of Positives for Helminthic Ova	..	..	..			67
Percentage of Positives	..	..	..		24.19%	
No. of Positives for E. Histolytica	..	..	..			29
Percentage of Positive	..	..	..		10.47%	
8. No. of Sputum for K.B.				..		663
No. of Positives	..	..	..	108		
Percentage of Positives	..	..	..		16.29%	
9. No. of Complete Urine Analysis				..	5,625	

DISTRIBUTION OF CASES AND DEATHS FROM COMMUNICABLE DISEASES ACCORDING TO DISTRICTS, 1953.

DISEASES	BELIZE		NORTHERN DISTRICT		STANN CREEK		TOLEDO		CAYO		TOTAL	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Typhoid Fever and Paratyphoid Fever .. (040-041) ..	50	1	4	—	10	1	8	2	19	—	91	4
Dysentery all forms .. (045-046) ..	321	2	40	1	41	5	29	1	15	—	446	9
Whooping Cough .. (056) ..	167	2	26	6	4	—	1	—	1	—	199	8
Diphtheria .. (055) ..	32	2	—	—	—	—	3	—	1	—	36	2
Measles .. (085) ..	81	—	1	—	19	—	34	4	8	—	143	4
Influenza .. (480-483) ..	447	7	165	2	—	—	53	—	20	—	685	9
Chickenpox .. (087) ..	5	—	5	—	26	—	—	—	—	—	36	—
Mumps .. (089) ..	2	—	—	—	1	—	1	—	1	—	5	—
Tuberculosis of respiratory system .. (001-008) ..	55	10	11	3	19	3	—	—	3	—	88	16
Other forms of Tuberculosis .. (010-019) ..	10	3	2	2	5	2	1	—	1	—	19	7
Gonococcus infection of the female genital-urinary system .. (030) ..	80	—	6	—	4	—	—	—	1	—	91	—
Gonococcus infection of the male genital-urinary system .. (030) ..	239	—	5	—	13	—	1	—	13	—	271	—
Gonococcus infection of the eye .. (033) ..	80	—	3	—	—	—	—	—	2	—	85	—
Other forms of Gonococcal infection .. (034) ..	4	—	1	—	1	—	1	—	—	—	7	—
Malaria unspecified .. (110-117) ..	735	7	193	—	483	2	154	2	251	—	1,816	11
Malignant tertian malaria (P. falciparum) .. (111) ..	40	1	5	—	1	—	8	—	—	—	54	1
Quartan malaria (P. Malariae) .. (110) ..	—	—	—	—	—	—	—	—	—	—	—	—
Benign tertian malaria (P. Vivax) .. (115) ..	13	—	—	—	—	—	—	—	—	—	13	—
Black Water Fever .. (021) ..	130	—	—	—	—	—	—	—	1	—	134	—
Early Syphilis .. (023) ..	—	—	3	—	—	—	—	—	—	—	—	—
Cardiovascular Syphilis .. (024-026) ..	2	—	—	—	—	—	—	—	2	—	4	—
Syphilis of the Nervous System .. (027) ..	40	1	4	—	28	—	2	—	1	—	75	1
Other forms of Syphilis .. (020) ..	20	—	2	—	1	—	1	—	1	—	25	—
Congenital Syphilis .. (057) ..	3	3	—	—	1	—	1	—	2	—	7	3
Cerebrospinal (meningococcus meningitis) .. (052) ..	1	—	—	—	—	—	—	—	—	—	1	—
Erysipelas .. (061) ..	16	3	—	—	—	—	—	—	3	—	19	3
Tetanus .. (053) ..	2	2	2	—	—	—	—	—	1	—	5	5
Septicemia .. (063) ..	—	—	—	—	—	—	—	—	—	—	—	—
Gas Bacillus infection .. (130) ..	1,095	—	199	—	687	—	6	—	89	—	2,076	—
Intestinal Worms other than Ankylostomiasis .. (129) ..	—	—	1	—	—	—	7	—	—	—	8	—
Ankylostomiasis .. (131) ..	122	—	1	—	—	—	—	—	1	—	124	—
Dermatophytosis and other forms of Mycosis .. (036) ..	19	—	—	—	4	—	—	—	1	—	24	—
Chancroid .. (038) ..	26	—	2	—	—	—	1	—	4	—	33	—
Lympho-granuloma inguinale .. (039) ..	6	—	—	—	1	—	—	—	1	—	8	—
Other forms of Venereal diseases .. (120) ..	6	—	—	—	—	—	—	—	—	—	6	—
Leishmaniasis .. (043) ..	—	—	—	—	—	—	—	—	—	—	—	—
Cholera .. (138) ..	—	—	—	—	—	—	—	—	3	—	4	—
Other infectious or Parasitic diseases ..	—	—	—	—	—	—	1	—	—	—	—	—
Total ..	3,849	44	681	16	1,350	13	313	9	446	1	6,639	83

AGE AND SEX DISTRIBUTION OF DEATHS FROM ALL CAUSES ACCORDING TO DISTRICTS.

Age Group	Belize District			Corozal District			Orange Walk District			Stann Creek District			Toledo District			Cayo District			Total Colony		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 1 year of age	51	34	85	18	18	36	17	11	28	20	10	30	44	18	62	10	9	19	160	100	260
1-4 years of age	10	12	22	7	6	13	2	2	4	5	12	17	14	10	24	3	3	6	41	45	86
5-9 "	2	3	5	—	1	1	—	1	1	—	—	—	4	3	7	1	—	1	7	8	15
10-14 "	4	1	5	1	—	1	—	—	—	1	—	1	4	—	4	—	—	—	10	1	11
15-19 "	2	2	4	1	—	1	—	1	1	1	1	2	2	2	4	1	—	1	7	6	13
20-24 "	5	3	8	—	1	1	—	1	1	—	—	—	3	4	7	—	1	1	8	10	18
25-29 "	6	4	10	2	2	4	—	1	1	2	—	2	1	1	2	—	1	1	11	9	20
30-34 "	7	8	15	—	4	4	—	1	1	2	—	5	2	4	6	—	1	1	11	21	32
35-39 "	5	13	18	1	2	3	—	2	2	1	—	1	3	1	4	—	1	1	10	19	29
40-44 "	5	7	12	—	1	1	3	1	4	1	2	3	2	—	2	1	2	3	12	13	25
45-49 "	10	8	18	—	—	—	1	—	1	3	1	4	2	3	5	1	1	2	17	13	30
50-54 "	12	8	20	—	—	—	1	1	2	2	2	4	1	1	2	1	2	3	17	14	31
55-59 "	5	6	11	3	1	4	2	1	3	2	2	4	3	1	4	4	3	7	19	14	33
60-64 "	9	6	15	2	—	2	—	2	2	—	12	2	2	1	3	—	—	—	13	11	24
65 and over	61	53	114	5	6	11	8	3	11	11	13	24	8	9	17	5	7	12	98	91	189
TOTAL ..	194	168	362	40	42	82	34	28	62	51	48	99	95	58	153	27	31	58	441	375	816

PULMONARY TUBERCULOSIS

Table showing the Age and Sex Distribution of Deaths.

Age Group								Males	Females	Both Sexes
Under 5 years	..	..	..	..	..	..	..	1	2	3
6-10	..	..	..	..	..	..	..	—	—	—
11-20	..	..	..	..	..	..	..	2	—	2
21-30	..	..	..	..	..	..	..	—	1	1
31-40	..	..	..	..	..	..	..	2	1	3
41-50	..	..	..	..	..	..	..	2	1	3
Over 50 years	..	..	..	..	..	..	..	5	3	8
Others	..	..	..	..	..	..	..	—	—	—
Total .. .. .								12	8	20

APPENDIX 4.

CAUSES OF DEATHS UNDER ONE YEAR OF AGE.

Cause of Death								Under 1 month	1 Month to under 1 year	Total
Diarrhoea and Enteritis	..	..	(571)	..	..			4	21	25
Malnutrition	..	..	(772)	..	..			5	9	14
Congenital Debility	..	..	(773)	..	..			2	1	3
Congenital Syphilis	..	..	(020)	..	..			—	—	—
Malaria	..	..	(110-117)	..	..			—	7	7
Pneumonia and Broncho Pneumonia			(763)	..	..			3	18	21
Whooping Cough	..	..	(056)	..	..			—	4	4
Influenza	..	..	(480-483)	..	..			—	—	—
Tetanus	..	..	(061)	..	..			—	—	—
Dysentery	..	..	(045-046)	..	..			—	—	—
Asphyxia	..	..	(762)	..	..			4	1	5
Atelectasis of Lungs	..	..	(762)	..	..			1	—	1
Helminthic Disease	..	..	(130)	..	..			—	1	1
Umbilical Haemorrhage	..	..	(771)	..	..			1	—	1
Haemorrhagic Diathesis	..	..	(771)	..	..			1	—	1
Convulsions	..	..	(773)	..	..			12	5	17
Congenital Defect	..	..	(750-759)	..	..			4	—	4
Bronchitis	..	..	(500-502)	..	..			2	4	6
Prematurity	..	..	(776)	..	..			23	1	24
Birth Injury	..	..	(760)	..	..			4	—	4
Diphtheria	..	..	(055)	..	..			—	—	—
Meningitis	..	..	(057)	..	..			—	2	2
Congenital Heart Disease	..	..	(754)	..	..			—	1	1
Rickets	..	..	(283)	..	..			—	—	—
Pleurisy	..	..	(519)	..	..			—	—	—
Anaemia	..	..	(290-299)	..	..			—	—	—
Measles	..	..	(085)	..	..			—	—	—
Enteric Fever	..	..	(040-041)	..	..			—	—	—
Tuberculosis	..	..	(001-008)	..	..			—	1	1
Chicken Pox	..	..	(087)	..	..			—	—	—
Septicaemia	..	..	(053)	..	..			—	—	—
Mumps	..	..	(085)	..	..			—	—	—
Erysipelas	..	..	(052)	..	..			—	—	—
Pemphigos Neonatorum	..	..	(766)	..	..			1	—	1
Others or Ill-defined	..	..		..	..			46	70	116
Total .. .. .								113	147	260

COMPARATIVE TABLE OF BIRTHS AND DEATHS OF INFANTS UNDER 1 YEAR  
FOR THE PERIOD 1946-1953.

Year						No. of Births	Births Rate	No. of Deaths under 1 year	Infant Mortality Rate
1946	..	..	..	..	..	2,065	34.3	217	105.0
1947	..	..	..	..	..	2,473	40.2	297	20.1
1948	..	..	..	..	..	2,506	39.68	264	105.6
1949	..	..	..	..	..	2,548	39.90	266	104.8
1950	..	..	..	..	..	2,657	39.40	284	106.5
1951	..	..	..	..	..	2,905	41.71	275	194.6
1952	..	..	..	..	..	3,028	41.38	237	78.3
Mean 1946-1952						2,597	39.51	262	102.1
1953	..	..	..	..	..	2,986	39.4	260	87.07

CAUSES OF DEATH IN THE PRE-SCHOOL CHILD.  
(1-5 years).

Disease Group										No.	Total in Group
(a) Communicable Diseases:											
	Malaria	..	..	..	..	..	..	(110-117)	..	2	
	Dysentery	..	..	..	..	..	..	(045-048)	..	3	
	Whooping Cough	..	..	..	..	..	..	(056)	..	3	
	Pneumonia and Broncho-pneumonia	..	..	..	..	..	..	(763)	..	3	
	Congenital Syphilis	..	..	..	..	..	..	(020)	..	—	
	Tetanus	..	..	..	..	..	..	(061)	..	1	
	Influenza	..	..	..	..	..	..	(480-483)	..	—	
	Meningitis	..	..	..	..	..	..	(057)	..	1	
	Diphtheria	..	..	..	..	..	..	(055)	..	1	
	Helminthiasis	..	..	..	..	..	..	(130)	..	—	
	Enteric Fever	..	..	..	..	..	..	(040-041)	..	—	
	Chicken Pox	..	..	..	..	..	..	(087)	..	—	11
(b) Diseases of the Nervous System:											
	Convulsions	..	..	..	..	..	..	(773)	..	6	6
(c) Diseases of the Respiratory System:											
	Bronchitis	..	..	..	..	..	..	(500-502)	..	2	
	Septic Tracheitis	..	..	..	..	..	..	..	..	—	
	Asthma	..	..	..	..	..	..	..	..	—	
	Tuberculosis	..	..	..	..	..	..	(001-008)	..	5	7
(d) Diseases of the Digestive System:											
	Diarrhoea and Enteritis	..	..	..	..	..	..	(571)	..	9	
	Tonsillitis	..	..	..	..	..	..	..	..	—	
	Gastritis	..	..	..	..	..	..	..	..	1	10
(e) Diseases of the Genito-Urinary System:											
	Nephritis	..	..	..	..	..	..	..	..	—	
(f) Injuries, Accidents, etc:											
	Fracture of Skull	..	..	..	..	..	..	..	..	1	
	Drowning	..	..	..	..	..	..	..	..	2	
	Poisoning	..	..	..	..	..	..	..	..	—	
	Burns	..	..	..	..	..	..	..	..	—	3
(g) Others	..	..	..	..	..	..	..	..	..	55	55
											92

MORBIDITY REPORT ON OUT-PATIENTS IN ALL THE HOSPITALS OF THE COLONY  
FOR 1953.

DISEASE	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
<i>I. INFECTIOUS AND PARASITIC DISEASES</i>							
1. Typhoid fever and Paratyphoid fevers .. .. .	1	2	3	—	—	—	6
2. Bacillary dysentery .. ..	2	10	—	—	—	—	12
3. Amebic dysentery including amoebiasis of any site .. ..	30	—	—	—	—	—	30
4. Dysentery unspecified .. ..	278	13	7	19	13	3	333
5. Scarlet fever .. .. .	—	—	—	—	—	—	—
6. Whooping cough .. .. .	159	2	1	2	2	1	187
7. Diphtheria .. .. .	19	—	1	—	—	—	20
8. Measles .. .. .	79	18	8	1	—	27	133
9. Influenza .. .. .	441	—	20	137	25	44	667
10. Chickenpox .. .. .	5	25	—	2	3	—	35
11. Mumps .. .. .	2	1	1	—	—	1	5
12. Tuberculosis of the respiratory system .. .. .	12	16	1	2	7	—	38
13. Other forms of tuberculosis ..	4	—	—	—	2	1	7
14. Gonococcus infection of the female genito-urinary system ..	80	3	—	3	2	—	88
15. Gonococcus of the male genito urinary system .. .. .	238	9	13	1	4	—	265
16. Gonococcus infection of the eye	79	—	1	2	—	—	82
17. Other forms of gonococcus in- fection .. .. .	4	1	—	1	—	—	6
18. Malaria, unspecified .. ..	706	404	215	100	29	54	1,508
19. Malignant tertian malaria (P. falciparum) .. .. .	26	—	—	4	—	—	30
20. Quartan malaria (P. malariae)	—	—	—	—	—	—	—
21. Benign tertian malaria (P. vivax)	8	—	—	—	—	—	8
22. Blackwater fever .. .. .	—	—	—	—	—	—	—
23. Early syphilis .. .. .	130	—	—	3	—	—	133
24. Cardiovascular syphilis ..	—	—	—	—	—	—	—
25. Syphilis of the nervous system	—	—	—	—	—	—	—
26. Other forms of syphilis ..	21	28	1	1	—	2	53
27. Congenital syphilis .. ..	19	1	1	2	—	1	24
28. Undulant fever (brucellosis) ..	—	—	—	—	—	—	—
29. Cerebrospinal (meningococcus) meningitis .. .. .	—	—	—	—	—	—	—
30. Erysipelas .. .. .	—	—	—	—	—	—	—
31. Tetanus .. .. .	9	—	—	—	—	—	9
32. Septicemia .. .. .	—	—	—	—	—	—	—
33. Gas bacillus infection .. ..	—	—	—	—	—	—	—
34. Rabies .. .. .	—	—	—	—	—	—	—
35. Tularemia .. .. .	—	—	—	—	—	—	—
36. Smallpox including alastrim ..	—	—	—	—	—	—	—
37. Acute poliomyelitis but not se- quelae to the acute disease ..	—	—	—	—	—	—	—
38. Acute infectious encephalitis ..	—	—	—	—	—	—	—
39. Typhus exanthematicus and other Rickettsias .. .. .	—	—	—	—	—	—	—
40. Intestinal Worms other than Ankylostomiasis .. .. .	1,079	664	87	146	33	6	2,015
41. Ankylostomiasis .. .. .	—	—	—	—	1	2	3
42. Dermatophytosis and other forms of mycosis .. .. .	122	—	1	—	1	—	124
43. Chancroid .. .. .	19	2	—	—	—	—	21
44. Lympho-granuloma inguinale	23	—	2	—	1	—	26
45. Other forms of venereal diseases	6	1	—	—	—	—	7
46. Leishmaniasis .. .. .	6	—	—	—	—	—	6
47. Leprosy .. .. .	—	—	—	—	—	—	—
48. Plague .. .. .	—	—	—	—	—	—	—
49. Yellow fever .. .. .	—	—	—	—	—	—	—
50. Cholera .. .. .	—	—	—	—	—	—	—
51. Relapsing fever .. .. .	—	—	—	—	—	—	—
52. Dengue .. .. .	—	—	—	—	—	—	—
53. Other infectious or parasitic diseases .. .. .	—	—	1	—	—	—	1

Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
<i>II. NEOPLASMS.</i>							
54. Malignant neoplasm of the buccal cavity and pharynx ..	24	—	—	—	—	—	24
55. Malignant neoplasm of Stomach	4	—	1	—	—	—	5
56. Malignant neoplasm of other digestive organs .. ..	—	1	1	1	—	—	3
57. Malignant neoplasm of the respiratory system .. ..	—	—	—	—	—	—	—
58. Malignant neoplasm of the cervix uteri .. .. .	1	—	1	—	—	—	2
59. Malignant neoplasm of other female genital organs (except breast) .. .. .	2	—	—	—	1	—	3
60. Malignant neoplasm of the female breast .. .. .	28	1	—	—	—	—	29
61. Malignant disease of bone ..	46	—	—	—	—	—	46
62. Leukemias and aleukemias, Hodgkin's disease and other forms of generalised or localised malignant neoplasm .. ..	4	—	—	—	—	—	4
63. Fibro-myoma of the uterus ..	1	4	2	1	—	—	8
64. Other non-malignant neoplasm of the female genital organs and breast .. .. .	—	—	—	—	—	—	—
65. Other non-malignant neoplasms	2	—	—	—	—	—	2
<i>III. RHEUMATIC FEVER, DISEASES OF THE ENDOCRINE GLANDS AND NUTRITION AND OTHER GENERAL DISEASES.</i>							
66. Rheumatic fever with heart involvement .. .. .	—	—	—	—	—	—	—
67. Rheumatic fever without heart involvement and including chorea .. .. .	3	5	1	1	—	—	10
68. Diabetes mellitus .. ..	30	2	2	3	1	1	39
69. Diabetes mellitus with infection or gangrene, acidosis or other sequelae .. .. .	1	—	—	1	—	—	2
70. Toxic goiter .. .. .	—	—	—	—	—	—	—
71. Other forms of goiter .. ..	8	—	—	—	—	—	8
72. Other diseases of the endocrine glands .. .. .	—	1	—	—	—	—	1
73. Malnutrition and related disorders but not of infants under 1 year of age .. .. .	124	8	2	5	1	2	142
74. Pellagra .. .. .	—	—	—	—	1	—	1
75. Rickets .. .. .	—	—	—	—	—	—	—
76. Other avitaminoses .. ..	22	1	2	1	11	1	38
77. Other general diseases .. ..	9	132	—	—	—	8	149
<i>IV. DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS.</i>							
78. Anaemia, Pernicious including macrocytic, and anaemia gravis of pregnancy .. .. .	14	—	—	22	3	3	42
79. Other forms of Anaemia ..	513	13	4	—	1	15	546
80. Other diseases of the blood and blood-forming organs .. ..	—	1	—	—	—	—	1
<i>V. CHRONIC POISONING AND INTOXICATION.</i>							
81. Alcoholism (Chronic) .. ..	1	—	—	—	—	—	1
82. Other chronic poisoning including drugs of addiction e.g. marihuana .. .. .	5	—	—	—	—	—	5
<i>VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS INCLUDING MENTAL DISORDERS.</i>							
83. Inflammatory diseases of the central nervous system ..	—	—	—	—	—	—	—
84. Intracranial lesions of vascular origin .. .. .	—	—	1	—	—	—	1
85. Residuals of intracranial lesions of vascular origin .. ..	—	—	—	—	1	—	1

Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
86. Other diseases of the central nervous system .. .. .	2	—	1	1	—	—	4
87. Diseases of the sympathetic and the peripheral nervous system	1	1	1	5	11	1	20
88. Psychoses .. .. .	—	—	—	—	—	—	—
89. Psychoses due to poisons injuries or somatic disease ..	—	—	—	—	—	—	—
90. Psychoneurosis .. .. .	2	—	—	1	—	—	3
91. Psychopathic personality—Behaviour and related problems	—	1	—	—	1	—	2
92. Mental deficiency .. .. .	3	—	1	—	1	—	5
93. Epilepsy .. .. .	22	4	3	3	1	2	35
94. Migraine .. .. .	244	3	—	—	—	—	247
95. Other mental and nervous diseases .. .. .	58	6	3	—	—	1	68
96. Diseases of the organs of vision except trachoma but including errors of refraction .. ..	175	66	128	31	12	6	418
97. Trachoma .. .. .	8	—	—	1	—	—	9
98. Diseases of the ear and mastoid process .. .. .	352	128	34	64	15	15	608

*VII. DISEASES OF THE CIRCULATORY SYSTEM.*

99. Hypertensive cardio-vascular disease .. .. .	86	—	9	1	—	—	96
100. Hypertensive cardiovascular-renal disease .. .. .	3	1	1	—	—	—	5
101. Subacute bacterial endocarditis	—	1	—	—	—	—	1
102. Other diseases of the cardiac valves, and of the myocardium	—	3	3	3	4	1	14
103. Diseases of the coronary arteries and angina pectoris .. ..	2	—	—	1	—	—	3
104. Functional disease of the heart	36	—	—	1	—	—	37
105. Other diseases of the heart ..	58	5	1	—	—	2	66
106. Arteriosclerosis .. .. .	—	8	—	3	1	—	12
107. Other diseases of the arteries	1	—	—	—	—	—	1
108. Other diseases of the veins including haemorrhoids and varicose veins .. .. .	73	2	—	2	1	—	78
109. Lymphadenitis and lymphangitis of septic origin—as distinct from lymphadenitis of, say syphilis and other general diseases ..	38	—	10	16	1	—	65

*VIII. DISEASES OF THE RESPIRATORY SYSTEM.*

110. Acute nasopharyngitis (common cold) .. .. .	2,571	165	173	122	53	—	3,084
111. Tonsillitis .. .. .	550	22	24	14	3	2	615
112. Hypertrophied tonsils with or without adenoids .. ..	16	—	—	2	—	—	18
113. Other diseases of the pharynx and of the larynx .. ..	11	6	2	13	8	2	42
114. Bronchitis .. .. .	594	203	158	100	69	114	1,238
115. Pneumonia (all forms) ..	276	36	6	14	—	—	332
116. Pleurisy with effusion .. ..	22	—	3	—	2	—	27
117. Sinusitis and other diseases of the Nasal fossae .. ..	57	4	4	3	2	—	70
118. Allergic rhinitis (hay fever) ..	11	—	—	—	—	—	11
119. Asthma .. .. .	337	73	32	38	1	3	484
120. Other diseases of respiratory system .. .. .	30	5	1	3	—	—	39

*IX. DISEASES OF THE DIGESTIVE SYSTEM.*

121. Diseases of the buccal cavity and esophagus .. .. .	98	99	14	17	18	3	249
122. Ulcer of the stomach and duodenum .. .. .	4	1	4	—	1	—	10
123. Diarrhoea and enteritis over two years of age .. .. .	80	156	54	7	6	8	311
124. Diarrhoea and enteritis under two years of age .. .. .	180	118	191	43	12	7	551
125. Appendicitis .. .. .	21	5	2	2	7	1	38

	Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
126.	Hernia .. .. .	105	22	2	2	—	2	133
127.	Intestinal obstruction .. ..	—	—	—	—	—	1	1
128.	Other diseases of the stomach and intestines .. .. .	481	80	31	5	14	1	612
129.	Cirrhosis of the liver .. ..	—	1	—	—	—	—	1
130.	Catarrhal jaundice .. .. .	2	6	—	1	—	—	9
131.	Other diseases of the gallbladder and biliary ducts .. .. .	9	1	14	6	5	1	36
132.	Other diseases of the digestive system .. .. .	155	27	3	2	—	8	195
<i>X. DISEASES OF THE GENITO-URINARY SYSTEM.</i>								
133.	Nephritis .. .. .	55	—	1	15	7	—	78
134.	Pyelitis, pyelonephritis and pye- locystitis but not of pregnancy	564	—	25	118	163	—	810
135.	Other diseases of the kidneys and ureters .. .. .	111	6	—	2	1	—	120
136.	Stricture of the urethra ..	4	—	—	1	—	—	5
137.	Other diseases of the urinary system .. .. .	145	35	1	4	—	—	185
138.	Diseases of the prostate ..	1	—	—	2	1	—	4
139.	Other diseases of the male gen- ital organs including phimosis	105	16	12	3	3	1	140
140.	Diseases of the female genital organs and breast (not neoplasms)	196	28	27	17	6	1	275
141.	Menopause .. .. .	63	5	1	7	3	—	79
142.	Menstrual disorders .. ..	301	13	7	15	3	1	340
<i>XI. DELIVERIES AND COMPLICATIONS OF PREGNANCY, CHILDBIRTH AND THE PUERPERIUM.</i>								
143.	Delivery with live birth ..	—	—	—	—	—	—	—
144.	Toxemias of pregnancy ..	—	—	2	—	1	1	4
145.	Placenta praevia .. .. .	—	—	—	—	—	—	—
146.	Other Haemorrhage of pregnan- cy and puerperium .. .. .	2	—	—	—	—	—	2
147.	Pyelitis and pyelonephritis of pregnancy, childbirth and the puerperium .. .. .	29	1	5	—	1	—	36
148.	Other infections of pregnancy, childbirth and the puerperium	—	—	—	—	—	—	—
149.	Abortion .. .. .	51	5	3	4	5	—	68
150.	Ectopic Pregnancy .. .. .	—	3	—	—	1	—	4
151.	Other complications of preg- nancy, childbirth and the puer- perium .. .. .	9	24	2	1	2	1	39
152.	Delivery with still birth (foetus over 28 weeks) .. .. .	—	—	—	—	—	—	—
<i>XII. DISEASES OF THE SKIN.</i>								
153.	Diseases of the skin but not fun- gous infections .. .. .	1,409	200	149	156	30	16	1,960
<i>XIII. DISEASES OF THE BONES AND ORGANS OF MOVEMENT.</i>								
154.	Arthritis but not gonococcal ..	53	11	3	22	3	1	93
155.	Other diseases of the bones and joints .. .. .	17	6	1	—	1	—	25
156.	Other diseases of the organs of movement .. .. .	6	1	—	—	—	—	7
<i>XIV. CONGENITAL MALFORMATIONS.</i>								
157.	Congenital malformations ..	12	—	—	1	—	—	13
<i>XV. DISEASES PECULIAR TO THE FIRST YEAR OF LIFE.</i>								
158.	Prematurity .. .. .	9	—	—	—	—	—	9
159.	Feeding problems including mal- nutrition under one year of age	58	5	2	—	1	—	66
160.	Other diseases peculiar to the first year of life and including birth trauma .. .. .	30	1	5	—	—	—	36
<i>XVI. OTHER AND ILL-DEFINED DISEASES.</i>								
161.	Senility .. .. .	90	—	—	4	—	—	94

Disease		Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
162.	Lumbago, myalgia, rheumatism, fibrositis, neuralgia except neuritis and trigeminal neuralgia ..	744	61	25	16	15	11	872
163.	Other ill-defined diseases ..	207	492	9	1	—	—	709
164.	Reaction from prophylactic inoculation and other allergic manifestations .. ..	32	—	2	1	1	—	36
165.	Other conditions due to previous disease or injury .. ..	208	77	—	—	3	1	289
<i>XVII. INJURIES AND POISONINGS.</i>								
166.	Acute poisoning .. ..	33	4	1	—	—	—	38
167.	Injury by foreign body and general effects of external causes, including concussion without fracture .. ..	129	11	10	26	7	2	185
168.	Snake Dog Bite .. ..	59	18	—	—	—	—	77
169.	Other general effects of external causes .. ..	44	4	—	—	1	5	54
170.	Concussion of brain or spinal cord .. ..	3	—	—	—	1	—	4
171.	Compound fracture .. ..	—	—	1	—	3	—	4
172.	Simple fracture .. ..	364	7	6	5	3	—	385
173.	Dislocation, sprain, or other joint injury without fracture ..	230	18	1	10	53	65	377
174.	Burn or scald .. ..	126	22	3	3	—	—	154
175.	Cut, laceration or puncture wounds, abrasion, contusion ..	884	466	59	187	27	34	1,657
176.	Other or unspecified injury ..	457	156	3	—	2	2	620
<i>XVIII. OTHER ENUMERATED CONDITIONS WITHOUT SICKNESS.</i>								
177.	Medical examinations, negative findings including post operation check up .. ..	322	74	135	10	53	65	659
178.	Infectious disease carrier without sickness .. ..	55	—	—	—	1	—	56
179.	Prophylactic inoculation without sickness .. ..	386	1	—	—	—	—	387
180.	Uncomplicated pregnancy without delivery .. ..	95	21	41	6	—	2	165
181.	Well-baby and child care ..	—	1	12	—	—	—	13
182.	Infant born alive .. ..	—	—	—	—	—	—	—
183.	Therapeutic manoeuvres ..	—	—	—	—	—	—	—
TOTAL .. ..		18,921	4,421	1,848	1,645	736	562	28,133

## MORBIDITY REPORT ON IN-PATIENTS IN ALL THE HOSPITALS OF THE COLONY FOR 1953

Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
<b>I. INFECTIOUS AND PARASITIC DISEASES</b>							
1. Typhoid fever and Paratyphoid fevers .. .. .	49	8	16	2	2	8	85
2. Bacillary dysentery .. .. .	2	9	1	—	—	—	12
3. Amoebic dysentery including amoebiasis of any site .. .. .	5	1	—	3	—	—	9
4. Dysentery unspecified .. .. .	4	8	7	1	2	26	48
5. Scarlet fever .. .. .	—	—	—	—	—	—	—
6. Whooping cough .. .. .	8	2	—	2	—	—	12
7. Diphtheria .. .. .	13	—	—	—	—	3	16
8. Measles .. .. .	2	1	—	—	—	7	10
9. Influenza .. .. .	6	—	—	2	1	9	18
10. Chickenpox .. .. .	—	1	—	—	—	—	1
11. Mumps .. .. .	—	—	—	—	—	—	—
12. Tuberculosis of the respiratory system .. .. .	43	3	2	1	1	—	50
13. Other forms of tuberculosis .. .. .	6	5	1	—	—	—	12
14. Gonococcus infection of the female genito-urinary system .. .. .	—	1	1	—	1	—	3
15. Gonococcus of the male genito-urinary system .. .. .	1	4	—	—	—	1	6
16. Gonococcus infection of the eye .. .. .	1	—	1	1	—	—	3
17. Other forms of gonococcus infection .. .. .	—	—	—	—	—	1	1
18. Malaria, unspecified .. .. .	29	79	36	44	20	100	308
19. Malignant tertian malaria (P. falciparum) .. .. .	14	1	—	—	1	8	24
20. Quartan malaria (P. malariae) .. .. .	—	—	—	—	—	—	—
21. Benign tertian malaria (P. vivax) .. .. .	5	—	—	—	—	—	5
22. Blackwater fever .. .. .	—	1	—	—	—	—	1
23. Early syphilis .. .. .	—	—	1	—	—	—	1
24. Cardiovascular syphilis .. .. .	—	—	—	—	—	—	—
25. Syphilis of the nervous system .. .. .	2	—	2	—	—	—	4
26. Other forms of syphilis .. .. .	19	—	—	2	1	—	22
27. Congenital syphilis .. .. .	1	—	—	—	—	—	1
28. Undulant fever (brucellosis) .. .. .	—	—	—	—	—	—	—
29. Cerebrospinal (meningococcus) meningitis .. .. .	3	1	2	—	—	1	7
30. Erysipelas .. .. .	1	—	—	—	—	—	1
31. Tetanus .. .. .	7	—	3	—	—	—	10
32. Septicemia .. .. .	—	—	1	—	—	1	2
33. Gas bacillus infection .. .. .	—	—	—	—	—	—	—
34. Rabies .. .. .	—	—	—	—	—	—	—
35. Tularemia .. .. .	—	—	—	—	—	—	—
36. Smallpox including alastrim .. .. .	—	—	—	—	—	—	—
37. Acute poliomyelitis but not sequelae to the acute disease .. .. .	2	—	—	—	—	—	2
38. Acute infectious encephalitis .. .. .	—	—	—	—	—	—	—
39. Typhus exanthematicus and other Rickettsias .. .. .	—	—	—	—	—	—	—
40. Intestinal Worms other than Ankylostomiasis .. .. .	16	23	2	18	2	—	61
41. Ankylostomiasis .. .. .	—	—	—	—	—	5	5
42. Dermatophytosis and other forms of mycosis .. .. .	—	—	—	—	—	—	—
43. Chancroid .. .. .	—	2	1	—	—	—	3
44. Lympho-granuloma inguinale .. .. .	3	—	2	—	1	1	7
45. Other forms of venereal diseases .. .. .	—	—	1	—	—	—	1
46. Leishmaniasis .. .. .	—	—	—	—	—	—	—
47. Leprosy .. .. .	—	—	—	—	—	—	—
48. Plague .. .. .	—	—	—	—	—	—	—
49. Yellow fever .. .. .	—	—	—	—	—	—	—
50. Cholera .. .. .	—	—	—	—	—	—	—
51. Relapsing fever .. .. .	—	—	—	—	—	—	—
52. Dengue .. .. .	—	—	—	—	—	—	—
53. Other infectious or parasitic diseases .. .. .	—	—	2	—	—	1	3
<b>II. NEOPLASMS</b>							
54. Malignant neoplasm of the buccal cavity and pharynx .. .. .	1	—	—	—	—	—	1
55. Malignant neoplasm of stomach .. .. .	—	—	—	—	—	—	—

	Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
56.	Malignant neoplasm of other digestive organs .. .. .	—	—	4	—	—	—	4
57.	Malignant neoplasm of the respiratory system .. .. .	—	—	—	—	—	—	—
58.	Malignant neoplasm of the cervix uteri .. .. .	10	—	—	1	—	—	11
59.	Malignant neoplasm of other female genital organs (except breast) .. .. .	3	1	1	—	—	—	5
60.	Malignant neoplasm of the female breast .. .. .	—	—	—	—	—	—	—
61.	Malignant disease of bone ..	1	—	—	—	—	—	1
62.	Leukemias and aleukemias, Hodgkin's disease and other forms of generalised or localised malignant neoplasm .. ..	—	—	—	—	1	—	1
63.	Fibro-myoma of the uterus ..	49	—	—	—	—	—	49
64.	Other non-malignant neoplasm of the female genital organs and breast .. .. .	10	—	—	—	—	—	10
65.	Other non-malignant neoplasms	3	—	—	—	—	—	3
<b>III. RHEUMATIC FEVER, DISEASES OF THE ENDOCRINE GLANDS AND NUTRITION, AND OTHER GENERAL DISEASES</b>								
66.	Rheumatic fever with heart involvement .. .. .	1	—	1	—	—	—	2
67.	Rheumatic fever without heart involvement and including chorea .. .. .	—	—	2	—	—	1	3
68.	Diabetes mellitus .. .. .	7	3	1	—	1	—	12
69.	Diabetes mellitus with infection or gangrene, acidosis or other sequelae .. .. .	3	—	1	—	—	—	4
70.	Toxic goiter .. .. .	—	—	—	—	—	—	—
71.	Other forms of goiter .. ..	2	—	—	—	—	—	2
72.	Other diseases of the endocrine glands .. .. .	3	—	—	—	—	—	3
73.	Malnutrition and related disorders but not of infants under 1 year of age .. .. .	4	6	1	2	—	5	18
74.	Pellagra .. .. .	—	—	—	—	1	—	1
75.	Rickets .. .. .	1	—	—	—	—	—	1
76.	Other avitaminoses .. .. .	5	—	—	—	—	3	8
77.	Other general diseases .. ..	5	—	—	—	—	1	6
<b>IV. DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS</b>								
78.	Anaemia, Pernicious including macrocytic, and anaemia gravis of pregnancy .. .. .	4	—	—	3	1	—	8
79.	Other forms of Anaemia ..	10	3	1	—	—	10	24
80.	Other diseases of the blood and blood-forming organs .. ..	—	—	—	—	—	1	1
<b>V. CHRONIC POISONING AND INTOXICATION</b>								
81.	Alcoholism (Chronic) .. ..	3	—	—	—	—	—	3
82.	Other chronic poisoning including drugs of addiction e.g. marihuana .. .. .	1	—	—	—	—	—	1
<b>VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS INCLUDING MENTAL DISORDERS</b>								
83.	Inflammatory diseases of the central nervous system .. ..	3	—	—	—	—	—	3
84.	Intracranial lesions of vascular origin .. .. .	—	4	1	—	—	—	5
85.	Residuals of intracranial lesions of vascular origin .. ..	—	—	—	—	—	—	—
86.	Other disease of the central nervous system .. .. .	8	—	—	1	—	2	11
87.	Diseases of the sympathetic and the peripheral nervous system..	—	—	—	1	1	—	2
88.	Psychoses .. .. .	1	—	1	2	2	—	6
89.	Psychoses due to poisons, injuries or somatic disease .. ..	—	—	—	—	1	—	1

	Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
90.	Psychoneurosis .. .. .	—	—	—	—	—	—	—
91.	Psychopathic personality—Be- haviour and related problems	1	—	—	1	—	—	2
92.	Mental deficiency .. .. .	—	1	—	—	—	—	1
93.	Epilepsy .. .. .	6	1	1	—	2	—	10
94.	Migraine .. .. .	—	—	—	—	—	—	—
95.	Other mental and nervous diseases .. .. .	1	—	4	—	—	—	5
96.	Diseases of the organs of vision except trachoma but including errors of refraction .. . . .	15	3	5	5	2	1	31
97.	Trachoma .. .. .	—	—	—	—	—	—	—
98.	Diseases of the ear and mastoid process .. .. .	9	2	1	6	1	5	24

#### VII. DISEASES OF THE CIRCULATORY SYSTEM

99.	Hypertensive cardio-vascular disease .. .. .	16	—	—	—	—	1	17
100.	Hypertensive cardiovascular-renal disease .. .. .	9	—	4	—	2	14	29
101.	Subacute bacterial endocarditis	—	—	—	—	—	—	—
102.	Other diseases of the cardiac valves, and of the myocardium	6	2	2	1	5	1	17
103.	Diseases of the coronary arteries and angina pectoris .. .. .	—	—	—	—	1	—	1
104.	Functional disease of the heart	—	—	—	1	—	—	1
105.	Other diseases of the heart ..	12	—	1	3	—	5	21
106.	Arteriosclerosis .. .. .	—	2	—	1	—	1	4
107.	Other diseases of the arteries ..	6	—	—	—	—	—	6
108.	Other diseases of the veins includ- ing haemorrhoids and varicose veins .. .. .	17	—	—	2	—	—	19
109.	Lymphadenitis and lymphangitis of septic origin—as distinct from lymphadenitis of, say syphilis and other general diseases ..	5	—	1	4	2	—	12

#### VIII. DISEASES OF THE RESPIRATORY SYSTEM

110.	Acute nasopharyngitis (common cold) .. .. .	9	4	1	9	1	—	24
111.	Tonsilitis .. .. .	25	4	—	6	—	4	39
112.	Hypertrophied tonsils with or without adenoids .. .. .	6	—	—	—	—	—	6
113.	Other diseases of the pharynx and of the larynx .. .. .	8	2	—	1	1	—	12
114.	Bronchitis .. .. .	78	41	3	30	12	158	322
115.	Pneumonia (all forms) .. .. .	27	44	8	10	2	3	94
116.	Pleurisy with effusion .. .. .	7	1	1	2	3	1	15
117.	Sinusitis and other diseases of the Nasal fossae .. .. .	6	—	—	—	—	—	6
118.	Allergic rhinitis (hay fever) ..	—	—	—	—	—	—	—
119.	Asthma .. .. .	27	11	5	8	—	7	58
120.	Other diseases of the respiratory system .. .. .	7	—	—	—	—	1	8

#### IX. DISEASES OF THE DIGESTIVE SYSTEM

121.	Diseases of the buccal cavity and esophagus .. .. .	6	3	2	4	2	1	18
122.	Ulcer of the stomach and duode- num .. .. .	10	—	1	—	—	—	11
123.	Diarrhoea and enteritis over two years of age .. .. .	16	9	10	—	2	28	65
124.	Diarrhoea and enteritis under two years of age .. .. .	22	22	—	—	1	29	74
125.	Appendicitis .. .. .	79	8	1	1	9	5	103
126.	Hernia .. .. .	69	5	—	1	1	—	76
127.	Intestinal obstruction .. .. .	4	—	—	—	—	—	4
128.	Other diseases of the stomach and intestines .. .. .	16	34	7	5	2	2	66
129.	Cirrhosis of the liver .. .. .	3	1	—	1	—	1	6

	Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
130.	Catarrhal Jaundice .. ..	1	5	—	1	—	—	7
131.	Other diseases of the gall bladder and biliary ducts ..	34	1	15	6	1	1	58
132.	Other diseases of the digestive system .. .. .	35	—	2	4	—	14	55
<i>X. DISEASES OF THE GENITO-URINARY SYSTEM</i>								
133.	Nephritis .. .. .	15	—	2	8	1	5	31
134.	Pyelitis, pyelonephritis and pye- locystitis but not of pregnancy	54	1	11	20	20	—	106
135.	Other diseases of the kidneys and ureters .. .. .	6	3	—	1	—	3	13
136.	Stricture of the urethra ..	7	—	—	—	—	—	7
137.	Other diseases of the urinary system .. .. .	36	6	3	—	—	3	48
138.	Diseases of the prostate ..	7	—	5	3	3	1	19
139.	Other diseases of the male genital organs including phimosis	133	2	—	36	2	5	178
140.	Diseases of the female genital organs and breast (not neoplasms)	—	11	10	6	5	14	46
141.	Menopause .. .. .	1	1	—	—	—	—	2
142.	Menstrual disorders .. ..	12	1	2	2	—	5	22
<i>XI. DELIVERIES AND COMPLICATIONS OF PREGNANCY, CHILD-BIRTH AND THE PHERPERIUM</i>								
143.	Delivery with live births ..	508	148	26	11	13	17	723
144.	Toxemias of pregnancy ..	13	3	7	—	1	1	25
145.	Placenta praevia .. ..	1	—	—	—	—	—	1
146.	Other hemorrhage of pregnancy and puerperium .. ..	4	—	—	—	—	—	4
147.	Pyelitis and pyelonephritis of pregnancy, childbirth and the puerperium .. .. .	9	1	2	3	—	—	15
148.	Other infections of pregnancy, childbirth and the puerperium	3	1	3	—	—	2	9
149.	Abortion .. .. .	88	22	18	7	7	3	145
150.	Ectopic pregnancy .. ..	6	2	—	—	1	1	10
151.	Other complications of preg- nancy, childbirth and the puerperium .. .. .	50	9	4	1	2	1	67
152.	Delivery with still birth (foetus over 28 weeks) .. .. .	25	—	4	1	1	—	31
<i>XII. DISEASES OF THE SKIN</i>								
153.	Diseases of the skin but not fungus infections .. ..	93	11	20	22	10	14	170
<i>XIII. DISEASES OF THE BONES AND ORGANS OF MOVEMENT</i>								
154.	Arthritis but not gonococcal ..	6	1	1	2	2	3	15
155.	Other diseases of the bones and joints .. .. .	13	1	2	—	—	—	16
156.	Other diseases of the organs of movement .. .. .	2	—	—	—	—	—	2
<i>XIV. CONGENITAL MALFORMATIONS</i>								
157.	Congenital malformations ..	10	—	—	—	—	—	10
<i>XV. DISEASES PECULIAR TO THE FIRST YEAR OF LIFE</i>								
158.	Prematurity .. .. .	1	—	3	—	—	—	4
159.	Feeding problems including malnutrition under one year of age .. .. .	14	—	2	2	—	—	18
160.	Other diseases peculiar to the first year of life and including birth trauma .. .. .	3	—	—	—	—	—	3
<i>XVI. OTHER AND ILL-DEFINED DISEASES</i>								
161.	Senility .. .. .	11	—	2	1	—	—	14
162.	Lumbago, mya'gia, rheumatism, fibrositis neuralgia except neuritis and trigeminal neuralgia ..	8	2	1	7	4	21	43
163.	Other ill-defined diseases ..	1	30	8	—	—	—	39
164.	Reaction from prophylactic in- oculation and other allergic manifestations .. ..	4	—	—	1	—	—	5

Disease	Belize	Stann Creek	Cayo	Corozal	Orange Walk	Toledo	TOTAL
165. Other conditions due to previous disease or injury .. ..	—	1	3	1	2	1	8
<i>XVII. INJURIES AND POISONINGS</i>							
166. Acute poisoning .. ..	7	—	—	1	2	—	10
167. Injury by foreign body and gen- eral effects of external causes, including concussion without fracture	12	2	3	1	1	1	20
168. Snake bite .. ..	2	—	1	—	1	—	4
169. Other general effects of external causes .. ..	2	1	—	—	1	1	5
170. Concussion of brain or spinal cord .. ..	4	—	2	1	—	—	7
171. Compound fracture .. ..	12	—	6	2	—	1	21
172. Simple fracture .. ..	63	4	22	6	7	4	106
173. Dislocation, sprain, or other joint injury without fracture ..	9	2	5	3	—	1	20
174. Burn or scald .. ..	22	7	1	5	3	4	42
175. Cut, laceration or puncture wounds, abrasion, contusion	104	45	23	25	22	49	268
176. Other or unspecified injury	5	4	—	1	2	3	15
<i>XVIII. OTHER ENUMERATED CONDITIONS WITHOUT SICKNESS</i>							
177. Medical examinations, negative findings including post operation check up .. ..	98	—	1	4	—	—	103
178. Infectious disease carrier without sickness .. ..	—	—	—	—	—	—	—
179. Prophylactic inoculation without sickness .. ..	—	—	—	—	—	—	—
180. Uncomplicated pregnancy without delivery .. ..	3	2	1	—	—	2	8
181. Well-baby and child care ..	—	—	4	1	—	—	5
182. Infant born alive ..	—	82	27	10	13	—	132
183. Therapeutic manoeuvres ..	—	—	1	—	—	—	1
<b>TOTAL</b>	<b>2,465</b>	<b>779</b>	<b>407</b>	<b>394</b>	<b>218</b>	<b>643</b>	<b>7,906</b>





## NOTES ON THE MALARIA PROBLEM IN BRITISH HONDURAS.

The description of the Colony is given in *A Brief Sketch of British Honduras*, by A. H. Anderson, as follows:—

“British Honduras is situated on the East Coast of Central America, facing the Caribbean Sea and bounded on the landward side by the Republic of Mexico in the North and Guatemala in the West and South.

British Honduras lies between

15° 54' and 18° 21' North Latitude and  
87° 28' and 89° 13½' West Longitude.

The length from North to South is 174 miles.

Breadth from East to West is 68 miles.

Area of mainland including the Cays 8,866 miles.

The Northern half of the country is level. In the South and South West the land rises sharply into a mountain area of a general altitude of from 2,000 to 3,000 feet. These are the Maya Mountains.

Except for certain savannah and swamp land and mountain tops the country is forested throughout. The dominant type being the mixed hardwood forest in which mahogany, cedar and sapodilla occur. Alternating with this forest and mostly confined to the flat regions are extensive tracts of pine land. Most of the coastal belt with the Cays is covered by mangrove swamps.

Crops grown in the Colony include citrus, coconut, corn, beans, cassava, rice, sugar cane and root-crops. Cattle raising is a thriving industry and so is fishing along the coast.

There are seventeen principal rivers of which two flow North to Chetumal Bay and the remainder East. All the rivers on the plain are flanked by extensive fresh water marshes.

From December to February the weather is cool with showers of rain. March, April and May constitute the ‘Dry Season’. The rainy season usually starts in June, light showers and periods of heavy rains alternate until the end of November. The rainfall is the heaviest from July to October.”

Table I gives the mean annual rainfall for five years, with range and the average number of rainy days for each district.

### Population.

Table II shows the estimated population for each district for 1950. These estimates are based on the Census of 1946 and they do not take into consideration the internal migration inside the Colony.

The population is static, though men employed in forestry work will be living in temporary camps for months at a time. Occupation is mainly extraction of lumber, saw-milling, agriculture and fishery.

With the exception of a few homogeneous Maya-Indian villages the various races live in mixed communities. Negro, Creole, Maya-Indian, Hispano-Indian, Carib, European and Asiatic races live under similar conditions.

Belize, the Capital, has an estimated population of 26,000. The five other district capitals average about 2,000 people. In these six towns live about half the total population. The other half live in villages scattered along the seacoast, the rivers and roads.

Population to the square mile is 7.6.

### Housing.

In the towns people live in wooden houses with galvanized iron roofs. The houses stand usually on wooden piles, three to seven feet above the level of the ground, which is often low-lying, swampy or flooded.

In the villages, on high ground, the houses are usually constructed of poles, sometimes covered with mud and plaster. They have earthen floors and thatched roofs. On swampy lands the usual structures are frame houses standing on piles. Typical number of rooms in the town is two for each house, in the villages only one. The average number of persons per house is estimated to be 6.7

Domestic animals in the villages, like pigs and poultry, are living loose around the house. Cattle, horses and mules are seldom stabled.

## Vital Statistics.

Table III showing hospital admissions for Malaria and the number of cases of notified communicable diseases and deaths for the six years 1948-1953, was compiled from the Annual Reports of the Director of Medical Services.

Table IV on vital statistics is compiled from data furnished by the Registrar General. They show the usual improvements which are everywhere associated with successful control of Malaria.

## Malaria Control.

Report to the Government of British Honduras upon the outbreak of Yellow Fever in that Colony in 1905, by Rubert Boyce, M.B. F.R.S., contains our first Malaria Survey. Section 6 of this report is "upon the prevalence of Malaria in British Honduras and its relationship to inefficient drainage; necessity for prophylactic measures". A plan of Belize, showing the distribution of *Anopheles* is attached to his report and the *Anopheles* breeding shallow drains running alongside many of the principal streets, depressed and water soaked waste areas in the town are surveyed. Filling and draining are recommended as prophylactic measures.

From the annual reports of the Colonial Surgeon during the years that follow we can see that some of the recommendations were implemented. The work of raising and draining the streets, filling and draining the land and clearing the bush went on year by year. But Malaria still remained a problem.

In 1936 Dr. R. L. Cheverton, the Senior Medical Officer, in his Annual Medical and Sanitary Report of British Honduras says: "Malaria—endemic—it is safe to assume that almost every single inhabitant has been infected or will be infected."

Preventive measures consisted in oiling all pools of stagnant water, in the construction of street drains, in reclamation schemes and in the distribution of larvivorous fish.

In 1946 Dr. A. J. Walker, M.D., of the Tulane University School of Medicine, surveyed the Gallon Jug Mahogany Camp and has originated a pilot project in Malaria Control with suppressive treatment using Aralene, later Paludrine, tablets and with residual D.D.T. spraying.

In 1947 a second pilot scheme in Malaria Control using similar methods started in San Pedro Columbia.

The results of these projects were reviewed by Dr. Walker in June-July 1949, and in 1950, with the help of the UNICEF, the Government have started a Colony wide campaign of D.D.T. residual spraying and the use of Paludrine as a suppressive agent.

The work still goes on without interruption. Our aim is to spray twice a year every house in the the Colony with a 5% emulsion of D.D.T. in Xylol, Triton and water in such a way as to leave a residue of 200-mgm. of D.D.T. on every square foot of wall surface treated.

We have not been able to achieve our goal. Certain localities, like St. Paul's Bank, Double Head Cabbage, Flowers Lime Walk, Grace Bank in the Belize District; Big Falls, Rio Blanco, Alquilos and Pueblo Viejo in the Toledo District and others, difficult of access, have never been sprayed. Also in places where we offer our services we often meet with refusal on the part of the occupier. In Belize Town 17.33%, in Stann Creek District 22.17%, of the occupiers refused us entry during the campaign January—April 1953.

The distribution of Paludrine tablets as a prophylactic measure was quite intense in 1949—1950; over 500,000 tablets were distributed. Three times a week for various periods in the different schools, children were made to swallow one tablet. In Rural Health Centres the resident Nurse, in isolated communities the school teachers, are still distributing Paludrine tablets to everybody who complains of fever.

Larvae control consists in the rather haphazard oiling of pools of stagnant water with Malariol mixed with Diesel oil distributed by "Four Oaks" knapsack sprayers.

## Anophelism.

In 1939 and 1940 Dr. W. H. Komp, Senior Entomologist, Canal Zone, Panama, indentified from a collection of mosquitoes made by District Medical Officers and Sanitary Inspectors the following nine species of *Anopheles*:—

*Anopheles albimanus*  
*darlingi*  
*vestitipennis*  
*apicimacula*  
*punctimacula*  
*pseudopunctipennis*  
*eiseni*  
*crucians*  
*chagasia bathanus.*

Only the first three were found in houses and were considered as probably the only vectors of Malaria in the Colony.

In July and August 1940 Drs. Henry W. Kumm and L. M. Ram made a comprehensive survey of anophelism and published their findings under the title of "Observations on the Anopheles of British Honduras" in the *American Journal of Tropical Medicine*, Vol. 21, No. 4, July 1941.

They confirmed the presence of the nine species identified by W. H. Komp. By dissecting 125 *Anopheles* they found that Komp's suggestion was correct and that *A. darlingi*, *albimanus* and *vestitipennis* are the vector species in British Honduras.

Kumm and Ram have stated in the summary of their paper that:—

1. *A. albimanus* was the most widely distributed anopheline in British Honduras.
2. *A. darlingi* was restricted in its distribution to certain rural areas situated in the southern part of the Colony and located well back from the sea coast.
3. Wherever it was abundant in British Honduras *A. darlingi* was characteristically a house-haunting species.
4. House caught specimens of both *A. darlingi* and *A. vestitipennis* were found naturally infected with sporozoites in their salivary glands.
5. The preferred breeding places of *A. darlingi* in British Honduras seemed to be among roots, debris or vegetation at the shady edges of quiet pools in slow running streams.

In the second half of October 1953 we have tried to repeat the work done by Drs. Kumm and Ram 13 years ago. We have used the same trap and we have constructed some identical ones. (Magoon, E. H.: "A portable stable trap for capturing mosquitoes". *Bul. Ento. Research*, 6 (pt. 1, 363-369. Sept. 1935.)

The erection of the traps and the collection of specimens from the traps and from two neighbouring dwellings, as well as the collection of larvae was performed by the Sanitary Inspector of the respective district. In all the six Districts of British Honduras the work went on simultaneously. The traps were baited with mules and left in the same location for two consecutive nights.

Early morning, theoretically at 6 o'clock, the traps were searched for 15 minutes and also 15 minutes were allowed to search each of the two dwellings. The traps were not treated with insecticides, the houses on the other hand have been regularly sprayed during the D.D.T. Campaign, the last application was approximately 60 days before the catching. We use hand catching methods.

Three hours were allowed for the search and collection of larvae, within a radius of 300 yards from the trap. The location of the breeding places were carefully mapped.

All the specimens were packed and labelled on the spot and sent by air to Dr. Jorge E. Zepeda of the Servicio Co-operative Interamericano de Salud Publica, in Tegucigalpa, Honduras, to whom we are indebted for the identification of the specimens.

The results of the two surveys at 13 years interval are analysed in Tables V and VI.

Table V, showing the geographical distribution of eight species of Anophelines in 1940 and 1953, indicates that two of the vectors of malaria, *A. darlingi* and *A. vestitipennis*, have disappeared together with the non-vector *A. eiseni*. These mosquitoes were of the house-haunting species and their disappearance might be the direct consequence of the D.D.T. Campaign.

The third vector species *A. albimanus* together with *A. punctimacula* was found in the same distribution in 1953 as in 1940. *A. crucians* has disappeared from Belize and Maskall, but it was found on a farm between these two urban communities. On the other hand, *A. apicimacula* and *A. pseudopunctipennis*, which in 1940 were found in the southern part of the Colony each in one locality, by 1953 became widely distributed.

Table VI, shows the paucity of Anophelines caught inside houses in 1953. As a matter of fact we have collected inside houses in addition to the eleven *Anopheles* 429 other mosquitoes, 420 *Culicines* and 9 *Aedes* species, mostly *Aedes taeniorhynchus*. However, the number of mosquitoes other than Anophelines collected in 1940 is not available for comparison.

*A. darlingi* and *A. vestitipennis* have completely disappeared both in the house caught, and trap caught samples.

The prevalence of *A. albimanus* and *A. punctimacula* is about the same in 1953 as it was in 1940. This is in conformity with the observation on their unchanged geographical distribution.

The increase in the relative prevalence of *A. apicimacula* and *A. pseudopunctipennis* corresponds with their wider distribution.

The Sanitary Inspectors are well aware of the breeding places of *A. albimanus* for in most of the localities they found the larvae within the 300 yards limit from the traps. The relative prevalence of the *A. albimanus* larvae is somewhat less than that of the *imago*. Still in Belize we have collected larvae of the vector mosquito from stagnant pools alongside some of the principal streets of the town. In the Appendix is given the long list of streets with shallow earthen drains, all potential and some proven breeding places of *A. albimanus*.

Submerged streets and private lots are still far too common a spectacle during the rainy season, they are all breeding places. The method of disposal of liquid wastes, soaking away within the compound, leads to the formation of breeding places round about every building of the Capital.

Water supply is mainly rainwater, collected from the roofs. Between the 5th of October and the 10th of November 1953 we have examined 6,665 receptacles used for the storage of rainwater in Belize. 1,362 or 20.43% contained mosquito larvae.

In the District Capitals the picture is very similar.

## Malariometry.

### *Mortality statistics.*

In his "Report to the Government of British Honduras upon the Outbreak of Yellow Fever in that Colony in 1905" Rubert Boyce, M.D., F.R.S., gives several tables from which it appears that the mortality rate from malaria in 1904 was 811.7 per 100,000 inhabitants for the Colony.

From the Annual Medical and Sanitary Reports of British Honduras we have collected the number of certified deaths attributed to Malaria and with the estimated total populations we have calculated the mortality rates from malaria for every year since 1936. Table VII.

In 1936 the malaria mortality rate was 162.3 per 100,000, hardly one fifth of the figure for 1904.

In 1948 the mortality rate for malaria per 100,000 was 85.6, only about half the rate of 1936 and about one-tenth of the mortality rate of 1904.

In 1950 the D.D.T. spraying became Colony wide. The death rate from malaria continued to fall rapidly and by 1952 it was 9.5 per 100,000 inhabitants, a reduction of more than 88% in four years.

But these figures refer only to deaths certified by Medical Practitioners. In 1952 61.21% of all deaths were so certified. In 1948 the proportion of certified deaths was 51.3%. The number of people who died without ever seeing a doctor is diminishing, still it cannot be ascertained how many of them died from malaria.

### *Morbidity Statistics.*

Hospital admission rates based on the Admission and Discharge Books of the six hospitals in the Colony are given on the same table as the malaria death rates. The diagnosis was based mainly on clinical examination and confirmed by the results of treatment. The hospital admission rate between 1948 and 1953 has diminished by more than 70%.

The reduction in the hospital admission rate of patients suffering from malaria might be an indication of the effectiveness of the prophylactic measures and the early treatment with Paludrine. On the other hand the criteria for admission might have changed. It is quite possible that today we admit patients to hospital, whom only four years ago we would have sent home with a bottle of medicine.

We must interpret these rates very carefully.

### *Spleen rates.*

Dr. Mark F. Boyd, of the Rockefeller Foundation, in July 1939 recorded the spleen rates in various schools in British Honduras. In July 1953 the same schools were examined and the same technique used. The results of the two examinations taken at an interval of 14 years are given in Table VIII.

It appears that in one school, that of Seine Bight, the spleen index has increased, but the difference is actually less than the Standard Error of the difference between these two proportions. It cannot be taken as statistically significant.

Taking all the schools together we observe that the spleen rate has been reduced from 33.4% to 7.3%, a reduction of about 78% during the 14 years. This is about eight times its Standard Error.

Spleen Indices recorded by our present Director of Medical Services in 1947 in two schools in the Toledo District, show respectively 84% and 80% reduction since the beginning of the D.D.T. Campaign in that district: Table IX.

### *Parasite rates.*

During the first fortnight of November 1953 we collected blood smears from 424 infants at 13 different child welfare centres throughout the Colony. From children under two years of age thick films were taken and the slides were sent by air or bus to the laboratory in Belize. Here the films were stained (Giemsa's method) within 24 hours of the collection. The films were examined at leisure. One hundred fields were searched in each thick film. No parasites were found.

In 1940 Anderson and Komp in Stann Creek District found two out of 33 smears positive in infants under two years of age. We have examined 140 films from that district, reputedly the most malarial region of the Colony, and we found no parasites.

In 1946 out of 251 blood smears examined from children 25 were positive, nine were *vivax*, the rest *falciparum*.

In 1947 from the Toledo District an Infant Parasite Rate of 7% was reported. We found no parasites in the 42 films examined from this District. This was no surprise to us, for already in 1951 the 233 specimens examined from this district were all negatives.

In Table X are summed up the results of blood films examined in the laboratory in Belize for malaria parasites during the past five years. This is a selected group of patients from whom the results of the examination was required mostly for the purpose of diagnosis. The reduction in the percentage of positive films might be significant.

### **Conclusions.**

All the customary indices of Malariometry as well as the falling death rate and infant mortality rates and the increasing birth rate point to our success in the measures taken to control malaria.

But, in 1953 we still found 26 individuals harbouring malaria parasites, and 7.3% of the school children examined showed enlarged spleens as witness of a previous attack of malaria. We still had deaths attributed to malaria and patients admitted to hospital with this disease. Also the mosquito which can propagate malaria is still present.

We cannot relax our efforts in malaria control. On the contrary the time has come now when we can think of measures to be taken for the complete eradication of malaria.

The problems therefore could be enumerated as follows:

1. Could we eliminate the vector species from the Colony by residual spraying alone?

If the answer to this question is in the affirmative then the following questions arise:

2. Should we rely on Health Education alone or should we ask for legislation to make the spraying compulsory.

3. Even if we could eliminate the vector of malaria by residual spraying should we not consider the nuisance from other species and attempt its control.

4. If the eradication of the vector species by residual spraying is not practicable or if we want to get rid of the nuisance of the biting mosquitoes, we must eliminate the breeding places.

5. In Belize for the past fifty years or so the measures taken to control the breeding places met with little success. Any new attempt in this direction should be based on a thorough and scientific programme of research.

E. LOSONCZI, M.D., D.P.H.

Belize, 15th February, 1954.

*Medical Officer of Health.*

TABLE I.

The mean annual rainfall (1943-47) with range and the average number of rainy days for each district in British Honduras.

Capital of District	Mean annual Rainfall in inches	Maximum Rainfall in inches	Minimum Rainfall in inches	Mean number of rainy days
Belize .. ..	63	131	42	146
Corozal .. ..	51	63	39	113
Orange Walk ..	61	72	48	109
El Cayo .. ..	52	60	33	111
Stann Creek ..	147	155	142	114
Punta Gorda ..	175	209	99	187

TABLE II.

Estimated Population of British Honduras in 1950

Name of the District	Males	Females	Total
Belize .. .. .	14,269	16,025	30,294
Cayo .. .. .	4,600	4,156	8,759
Corozal .. .. .	4,036	3,674	7,710
Orange Walk ..	3,353	3,027	6,380
Stann Creek ..	3,402	3,851	7,253
Toledo .. .. .	3,497	3,537	7,034
Total for the Colony .. ..	33,157	34,273	67,430

TABLE III.

Communicable Diseases in British Honduras, 1949-1953. Notified Cases and Number of Deaths

Name of Disease	1949	1950	1951	1952	1953
Malaria:					
Hospital admissions .. ..	898	806	534	460	341
Deaths .. .. .	45	29	7	7	10
Enteric Fever:					
Notified cases .. ..	60	66	64	49	74
Deaths .. .. .	5	6	15	1	4
Dysentery:					
Notified cases .. ..	148	170	146	294	155
Deaths .. .. .	25	16	7	18	9
Pulmonary Tuberculosis:					
Notified .. .. .	45	49	62	85	61
Deaths .. .. .	33	34	37	35	20

TABLE IV.

Vital Statistics for British Honduras 1949-1953

	1949	1950	1951	1952	1953
Birth rate per 1,000 ..	38.9	39.4	41.7	41.4	39.4
Death rate per 1,000 ..	13.4	11.0	11.5	10.8	10.7
Infant mortality rate per 1,000 live birth ..	104.8	106.5	94.6	78.3	87.0

TABLE V.

The geographical distribution of eight species of *Anopheles* found in the twelve localities examined in 1940 and 1953.

Names of localities examined	<i>A. albimanus</i>	<i>A. apicimacula</i>	<i>A. crucians</i>	<i>A. darlingi</i>	<i>A. eiseni</i>	<i>A. pseudopunctipennis</i>	<i>A. punctimacula</i>	<i>A. vestitipennis</i>
Belize .. .. .	X	/	O			/	X	
De la Rosa Farm .. .. .	X	/	/				X	O
Maskall .. .. .	/	/	O					O
Corozal .. .. .	X	/				/	X	O
New River near Ferry .. .. .	X	/				/		
Orange Walk .. .. .	X	/				/		
Middlesex .. .. .	X							
Stann Creek .. .. .	X	/				/		O
Pomona .. .. .	X	O		O				
Punta Gorda .. .. .	X							
San Antonio Nuevo .. .. .					O	O		
Four Miles .. .. .		/		O			/	

Symbols: X present both in 1940 and in 1953; O present in 1940 only; / present in 1953 only.

TABLE VI.

Relative prevalence of *Anopheles* mosquitos collected as adults in 1940 and in 1953.

Species of <i>Anopheles</i> caught	Anophelines caught inside houses mostly in bed nets or underneath beds		Anophelines caught in traps with a horse or mule as bait	
	1940	1953	1940	1943
<i>A. albimanus</i> .. .. .	83	6	163	594
<i>A. apicimacula</i> .. .. .	0	2	31	198
<i>A. darlingi</i> .. .. .	163	0	41	0
<i>A. punctimacula</i> .. .. .	0	0	16	41
<i>A. pseudopunctipennis</i> .. .. .	0	3	1	90
<i>A. vestitipennis</i> .. .. .	56	0	7	0
Total .. .. .	302	11	259	923

TABLE VII.

Number of cases of Malaria admitted yearly to hospitals and admission rates. Number of deaths attributed to Malaria and Malaria mortality rates per 100,000 inhabitants 1936-1953.

Year	Number of admissions	Admission rate per 100,000	Number of deaths	Mortality rate per 100,000
1936 ..	847	1,512	91	162.3
1937 ..	758	1,328	60	110
1938 ..	650	1,120	75	121
1939 ..	653	1,112	84	142
1940 ..	702	1,170	61	101
1941 ..	1,200	1,968	25	47.5
1942 ..	764	1,238	26	42.1
1943 ..	863	1,380	20	32
1944 ..	985	1,556	55	86.6
1945 ..	N.A.	N.A.	50	74.6
1946 ..	N.A.	N.A.	N.A.	N.A.
1947 ..	1,010	1,642	45	73.1
1948 ..	954	1,511	54	85.6
1949 ..	898	1,363	45	68.9
1950 ..	806	1,195	29	43
1951 ..	534	716	7	10
1952 ..	460	630	7	9.5
1953 ..	341	449	10	13.1

N.A.—Not available

TABLE VIII.

## Spleen Rates in School Children in British Honduras in 1939 and 1953

District	School	Age Limit	No. examined	No. Positive PPD					Total Positive	Per cent
				1	2	3	4			
In 1939—										
Toledo ..	.. Monkey River .. ..	..	13	100	15	8	4	—	27	27
Stann Creek ..	.. Seine Bight .. ..	..	11	35	3	—	1	—	4	11.4
	Stann Creek R.C. .. ..	..	11	95	21	7	11	—	39	41.1
	St. Joseph .. ..	..	13	24	4	5	6	3	18	75
	Macaroni Hill (Holy Angels)	..	13	12	1	3	5	2	11	91.9
Belize ..	.. Boom .. ..	..	13	30	3	2	1	—	6	20
	Santana (Zion Park) .. ..	..	13	38	5	5	7	—	17	44.8
	Maskall .. ..	..	13	36	6	5	9	1	21	53.3
	St. Ignatius .. ..	..	11	103	9	3	1	—	13	12.6
Total (1939) .. ..				473					156	33.4
In 1953—										
Toledo ..	.. Monkey River .. ..	..	13	100	5	2	3	—	10	10
Stann Creek ..	.. Seine Bight .. ..	..	11	148	10	8	3	—	21	14.18
	Stann Creek R. C. .. ..	..	11	141	2	4	1	—	7	4.9
	St. Joseph .. ..	..	13	23	1	1	—	—	2	8.7
	Macaroni Hill (Holy Angels)	..	13	91	2	3	—	—	5	5.5
Belize ..	.. Boom .. ..	..	13	93	2	6	—	—	8	8.6
	Santana (Zion Park) .. ..	..	13	34	3	—	—	—	3	8.8
	Maskall .. ..	..	13	74	—	—	1	—	1	1.3
	St. Ignatius .. ..	..	11	132	3	2	—	—	5	3.8
Total (1953) .. ..				836					62	7.3

TABLE IX.

## Spleen rates in School Children in Toledo District in 1947, 1951 and 1953.

Name of School	Percentage of Children showing enlarged Spleen		
San Antonio ..	1947—27%	1951—10%	1953—4.31%
Columbia ..	1947—49%	1951—17%	1953—9.8%

TABLE X.

## Results of the Examination of Blood Films for Malaria Parasites in the Belize Laboratory 1949—1953.

Year	Number examined	Number Positive	Percentage Positive
1949 .. ..	3,448	501	14.52
1950 .. ..	2,758	288	10.44
1951 .. ..	1,740	155	8.91
1952 .. ..	823	35	4.25
1953 .. ..	754	26	3.45

## APPENDIX

## Streets in Belize without Concrete Drains.

1. Dickenson Street	14. Bagdad Street	27. Eyre Street	39. Kelly Street
2. Harvey Street	15. Richard Side Walk	28. Key Hole Alley	40. Freetown Road
3. Yarborough	16. George Street	29. Fort Street	41. York Street
4. Cemetery Lane	17. West Street	30. Brides Alley	42. Castle Lane
5. Racecourse Street	18. Far West Street	31. Pinks Alley	43. Cran Street
6. East Canal Street	19. King Street	32. Gaol Lane	44. Cleghorn Street
7. Palm Lane	20. Bishop Street	33. Eve Street	45. Slaughterhouse Road
8. Foreshore	21. Zitoun Street	34. Mortuary Lane	46. Usher Street
9. Duck Lane	22. Collet Canal Street	35. Angel Lane	47. Paper Alley
10. Water Lane	23. West Canal Street	36. Wilson Street	48. Card Alley
11. Regent Street West	24. Marine Parade	37. Barracks Road	49. Lancaster Lane
12. Vernon Street	25. Dredge Street	38. Kirkwood Alley	50. Pitts Alley
13. Mosul Street	26. Cross Street		